

Institute of Paper Science and Technology
Central Files

CONTINUOUS BASELINE STUDY

✓ Project 1108-13

Progress Report 132

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

July 1, 1958

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

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In conjunction with the F.K.I. Continuous Baseline Study, The Institute of Paper Chemistry has been directed to identify the participating mills by means of a scrambled system of code letters. Under this system, which was initiated in Progress Report 105, each mill is identified by a code letter different from that used for the previous month.

During the month of June, ninety-one different sample lots of 42-lb. Fourdrinier kraft linerboard from eighteen different F.K.I. mills were processed at The Institute of Paper Chemistry. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I
DISTRIBUTION OF 42-LB. LINERBOARD SAMPLES

Mill Code	Samples Submitted
A	4
B	5
C	2
D	9
E	1
F	3
G	9
H	7
I	3
J	4
K	9
L	6
M	10
N	7
O	4
P	1
Q	0
S	6
T	<u>1</u>
Total	91

Mill Code	Per Cent
A	+4.3
B	+2.1
C	+4.3
D	+4.0
E	+6.2
F	+3.1
G	+2.6
H	+2.9
I	+1.9
J	+1.2
K	+2.1
L	+3.3
M	+4.8
N	+2.9
O	+3.1
P	+1.2
Q	--
S	+5.2
T	+3.8

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicates that the basis weight results have remained constant at 43.3 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the current mill averages varied from a low of 11.4 points for Mill P to a high of 13.6 points for Mill H. The current F.K.I. average is 12.6 points, slightly lower than the cumulative F.K.I. average of 12.7 points, as indicated by the F.K.I. index of 99.2%.

The average bursting strength values obtained for each mill are graphically presented in Figure 3. It may be observed in Table II and Figure 3 that the current mill averages for bursting strength ranged from a low of 104 for Mill O to a high of 118 for Mill M. The current F.K.I.

average bursting strength is 112 p.s.i. g., which is the same as the cumulative F.K.I. average.

A graphic comparison of the Elmendorf tear results shown in Table II for the various mills is given in Figures 4 and 5. These presentations show that Mill G had the highest average machine direction tear value of 388 g./sheet and that Mill I had the lowest value of 279 g./sheet. It may be further noted in Table II that the highest cross-machine direction tear value of 409 g./sheet was associated with Mill E and that the lowest value of 348 g./sheet was associated with Mill P. It may be observed also that the current F.K.I. averages for machine direction and cross-machine direction Elmendorf tear are slightly higher than their respective cumulative F.K.I. averages.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. averages for basis weight, machine direction and cross-machine direction Elmendorf tear are higher than their respective cumulative F.K.I. averages, whereas the current F.K.I. average for bursting strength is the same as its cumulative F.K.I. average, and the current F.K.I. average for caliper is slightly lower than its cumulative F.K.I. average.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XXI for Mills A through T, respectively.

In addition to the current and cumulative average, the mill factor and mill index are given for each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular

mill for the previous twelve months excluding the current period. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor } (\%)$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index } (\%)$$

The mill factor and the mill index are a convenient means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also present a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry. These test data are presented and discussed on subsequent pages of this report.

It may be noted in Tables III through XXI that the test data include information about the sheet finish. The summarized results for the mills which submitted sample lots during the current period are as follows:

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
A	4 ^a		
B	5 ^a		
C	2		
D	9		
E	1		
F	3 ^a		
G	9		
H	7 ^a		
I	3		
J			4 ^b
K	9		
L	6		
M	10		
N	7		
O	4		

(Continued on the following page.)

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
P	1		
Q	No samples submitted.		
S	6		
T	1 ^a		

^a One side.

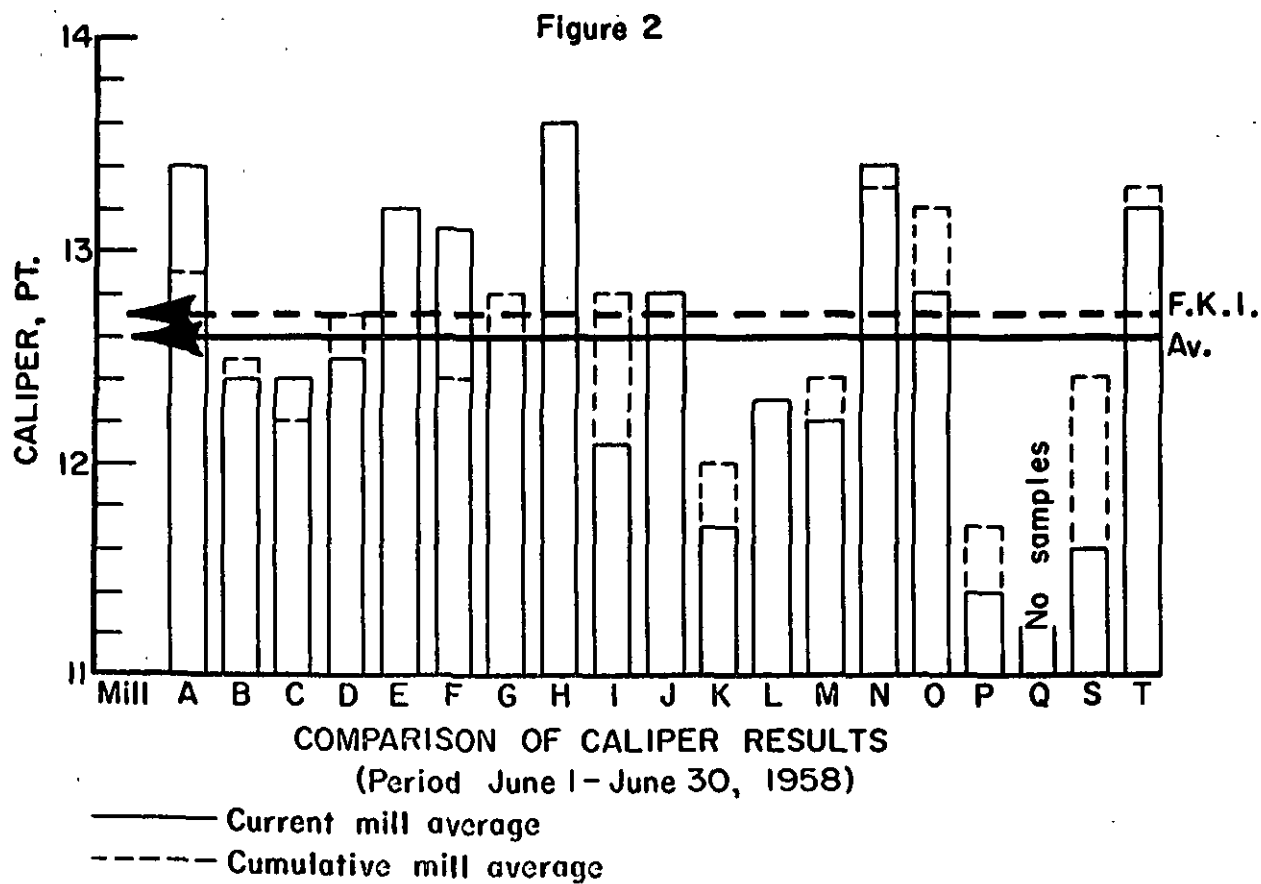
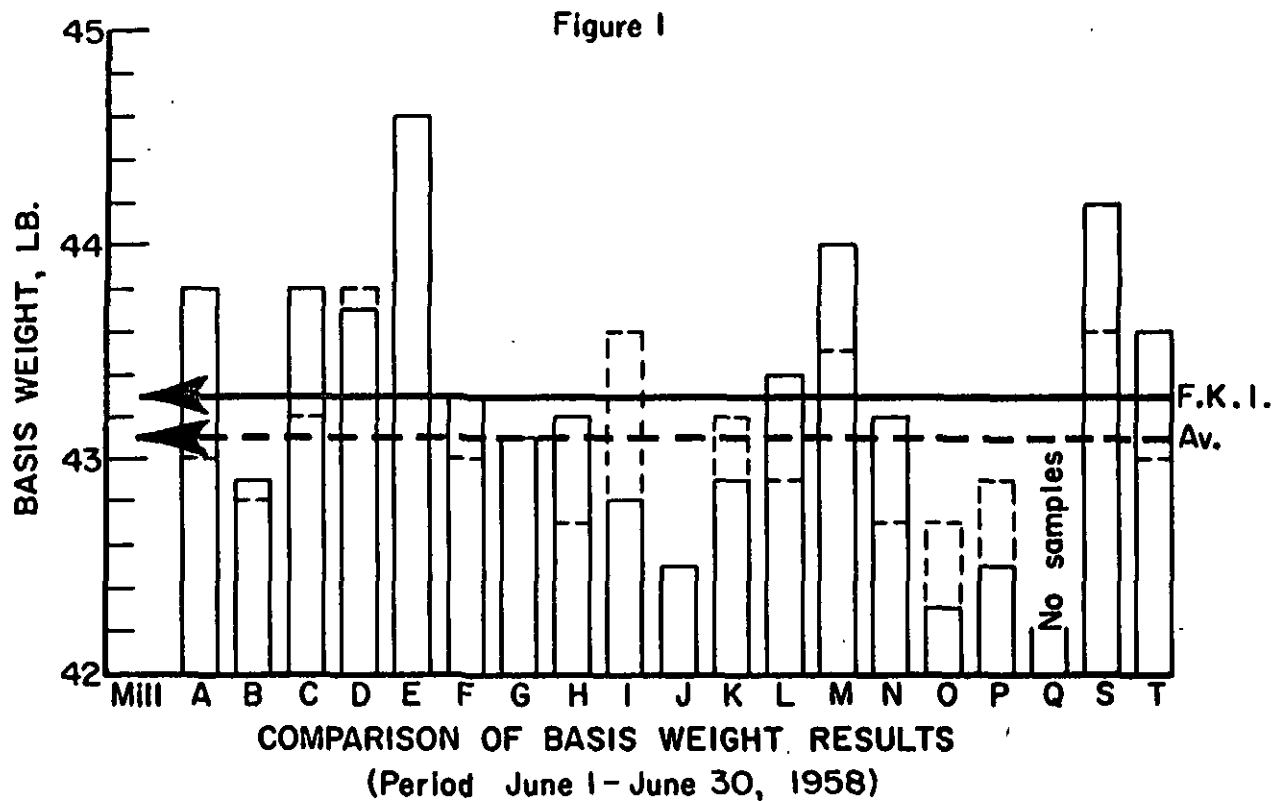
^b Unidentified

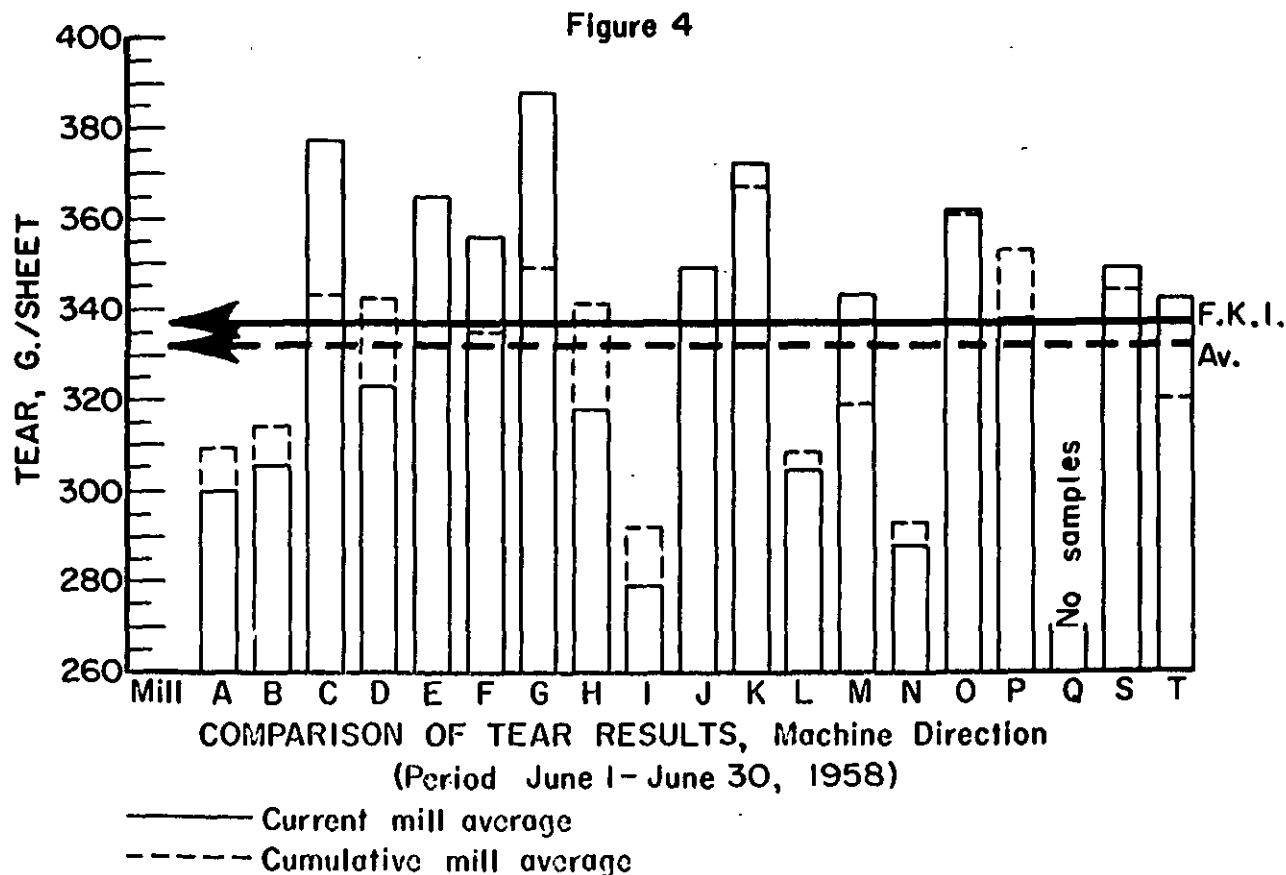
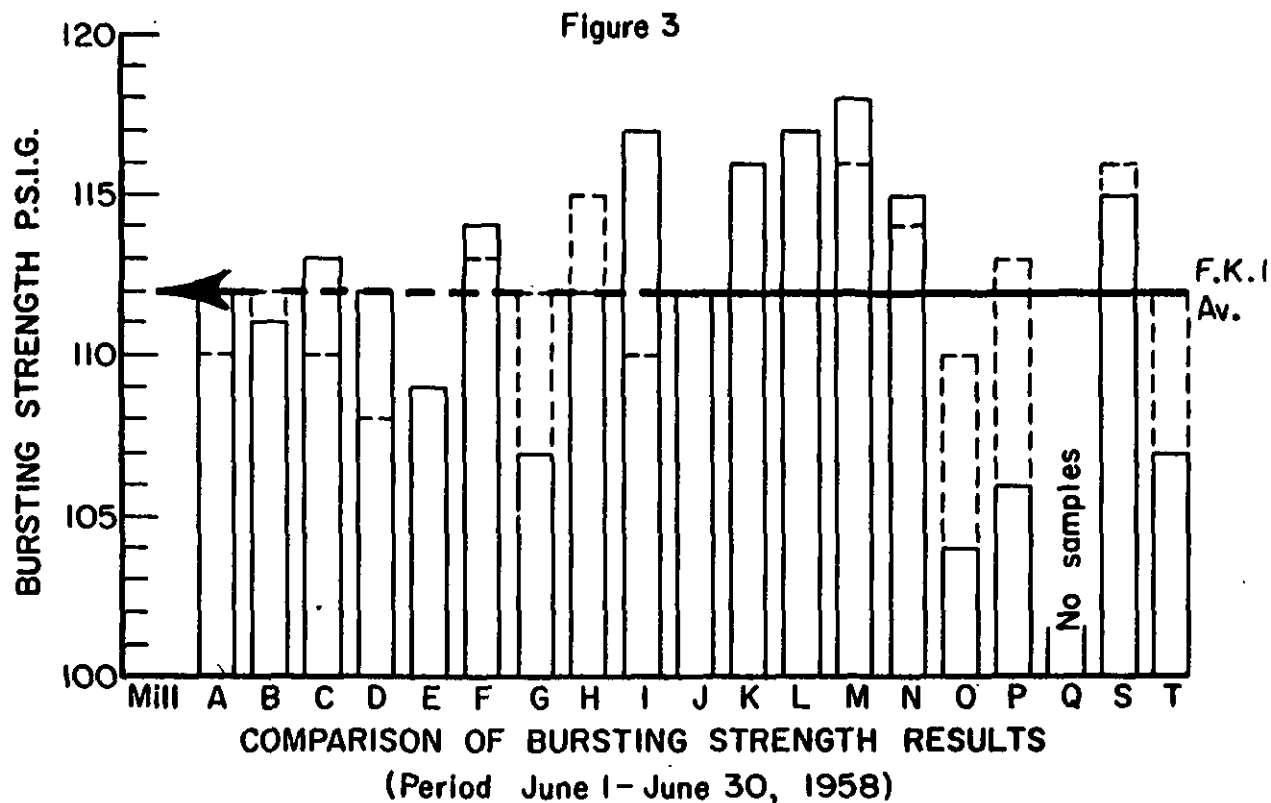
The results indicate that the majority of the participating mills are using a water finish on their 42-lb. linerboard.

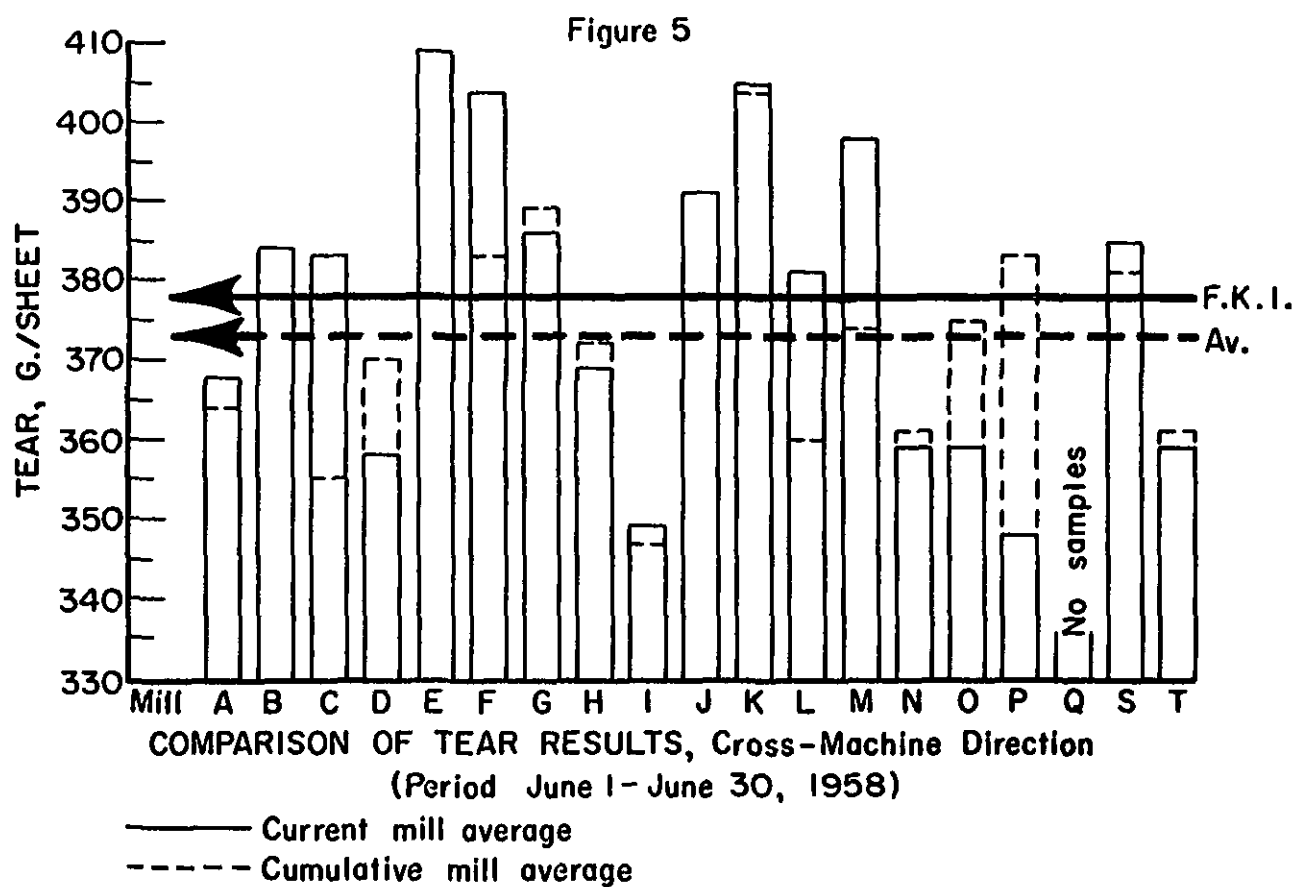
TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--JUNE 1 THROUGH JUNE 30, 1958

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	In Machine	Elmendorf Tear, g./sheet Cross Machine
A	43.8	13.4	112	300	368
B	42.9	12.4	111	305	384
C	43.8	12.4	113	377	383
D	43.7	12.5	112	323	358
E	44.6	13.2	109	365	409
F	43.3	13.1	114	356	404
G	43.1	12.6	107	388	386
H	43.2	13.6	112	318	369
I	42.8	12.1	117	279	349
J	42.5	12.8	112	349	391
K	42.9	11.7	116	372	405
L	43.4	12.3	117	304	381
M	44.0	12.2	118	343	398
N	43.2	13.4	115	288	359
O	42.3	12.8	104	362	359
P	42.5	11.4	106	338	348
Q	No samples submitted.				
S	44.2	11.6	115	349	385
T	43.6	13.2	107	342	359
Current FK1 Average:	43.3	12.6	112	337	378
Cumulative FK1 Average:	43.1	12.7	112	332	373
FK1 Index, %	100.5	99.2	100.0	101.5	101.3







SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958

TABLE III

MILL A -- 42-LB. LINERBOARD

File No	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight,		Caliper,		Bursting Strength,		Elmendorf Tear,								
					lb.		points		p.s.i. gage		g./sheet		Across						
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Av.				
178908	WFLS	6/ 2/58	5/21/58	1	45.0	43.8	44.4	14.0	12.9	13.5	145	91	116	336	224	287	424	328	368 ^a
178909	WFLS	6/ 2/58	5/21/58	1	45.6	43.6	44.3	14.6	13.0	13.7	139	82	112	368	224	300	440	328	384 ^a
179092	WFLS	6/19/58	6/10/58	1	43.8	42.2	43.0	14.2	12.4	13.2	137	80	105	360	264	307 ^a	376	312	354 ^a
179093	WFLS	6/19/58	6/11/58	1	45.0	42.2	43.7	13.8	12.2	12.9	138	88	116	352	264	307	416	328	368 ^a
Current Mill Average:							43.8			13.4			112			300			368
Cumulative Mill Average:							43.0			12.9			110			309			364
Mill Factor, %							101.9			103.9			101.8			97.1			101.1
Mill Index, %							101.6			105.5			100.0			90.4			98.7

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE IV

MILL B -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight,		Caliper,		Bursting Strength,		Elmendorf Tear,									
					lb.		points		p.s.i., gage		g./sheet		Across							
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.				
179063	WFLS	6/16/58	6/3/58	1	44.0	42.0	43.5	12.6	11.5	12.2	128	85	109	360	272	303	480	336	389 ^a	
179064	WFLS	6/16/58	6/4/58	1	43.8	42.0	43.0	13.2	12.2	12.7	127	98	112	352	240	299 ^a	480	336	389 ^a	
179065	WFLS	6/16/58	6/6/58	1	42.4	41.6	42.0	13.1	12.1	12.5	131	90	112	352	248	303	424	344	369 ^a	
179121	WFLS	6/24/58	6/13/58	1	43.6	42.0	42.8	13.2	12.1	12.5	130	95	110	336	272	299	432	352	381 ^a	
179122	WFLS	6/24/58	6/16/58	1	44.4	42.6	43.2	12.6	11.9	12.2	136	78	112	344	296	318	432	352	393 ^a	
Current Mill Average:					42.9		12.4		111		305		384							
Cumulative Mill Average:					42.8		12.5		112		314		384							
Mill Factor, %					100.2		99.2		99.1		97.1		100.0							
Mill Index, %					99.5		97.6		99.1		91.9		102.9							

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE V

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet								
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
179069	W.F.	6/16/58	5/29/58	-	44.4	42.2	43.6	13.0	12.0	12.5	135	91	115	432	336	368 ^a	416	320	371 ^a
179070	W.F.	6/16/58	5/29/58	-	45.0	43.0	44.0	13.5	11.5	12.4	125	80	110	448	312	386	448	320	395 ^a
Current Mill Average:							43.8			12.4			113			377			383
Cumulative Mill Average:							43.2			12.2			110			343			355
Mill Factor, %							101.4			101.6			102.7			109.9			107.9
Mill Index, %							101.6			97.6			100.9			113.6			102.7

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE VI

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.s.i.		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
178901	W.F.	6/ 2/58	5/14/58	-	44.0	42.6	12.5	11.8	132	106	320	224
178902	W.F.	6/ 2/58	5/15/58	-	44.0	42.6	12.2	11.0	130	104	328	240
178903	W.F.	6/ 2/58	5/16/58	-	44.0	42.0	12.7	11.2	134	106	320	256
178975	W.F.	6/ 6/58	5/28/58	-	45.0	44.0	13.2	12.5	127	78	384	304
173976	W.F.	6/ 6/58	5/29/58	-	43.8	43.6	13.4	12.5	121	88	376	288
178977	W.F.	6/ 6/58	5/30/58	-	45.0	44.0	13.5	12.2	134	101	464	304
179094	W.F.	6/23/58	6/11/58	-	45.8	42.0	13.5	12.2	127	89	384	304
179095	W.F.	6/23/58	6/12/58	-	46.0	42.2	13.0	12.0	129	89	416	296
179096	W.F.	6/23/58	6/13/58	-	43.8	42.4	13.1	12.2	133	88	384	288
Current Mill Average:					43.7		12.5		112		323	
Cumulative Mill Average:					43.8		12.7		108		342	
Mill Factor, %					99.8		98.4		103.7		94.4	
Mill Index, %					101.4		98.4		100.0		97.3	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE VII

MILL E -- 42-LB. LINERBOARD

File No.	Furnish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		Elmendorf Tear, g./sheet								
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	In	Across				
178900	A.F.	6/ 2/58	5/20/58	1	45.6	44.0	44.6	14.0	12.8	13.2	130	79	109	440	320	365	456	384	409 ^a
Current mill average.							44.6			13.2			109			365			409
Cumulative mill average:							----			----			---			---			---
Mill Factor, %							----			----			---			---			---
Mill Index, %							103.5			103.9			97.3			109.9			109.7

TABLE VIII

MILL F -- 42-LB. LINERBOARD

179973	WFLS	6/6/58	6/1/58	2	44.0	42.4	43.3	13.9	13.0	13.5	132	88	116	416	328	379 ^a	448	400	428 ^a
179062	WFLS	6/16/58	6/10/58	2	44.4	42.4	43.2	13.5	12.5	13.0	124	94	112	392	312	357	424	368	401 ^a
179110	WFLS	6/23/58	6/16/58	2	44.0	42.4	43.4	13.4	12.2	12.9	126	96	112	384	288	332 ^a	416	360	382 ^a
Current mill average:							43.3			13.1		114				356			404
Cumulative mill average:							43.0			12.4		113				335			383
Mill Factor, %							100.7			105.6		100.9				106.3			105.5
Mill Index, %							100.5			103.1		101.8				107.2			108.3

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE IX

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
173524	I.F.	6/2/58	5/15/58	2	43.0	42.0	12.4	12.0	134	85	448	312
173525	V.F.	6/2/58	5/16/58	2	43.6	41.0	12.9	11.8	134	88	464	336
173535	N.F.	6/9/58	5/19/58	2	43.8	42.6	12.7	12.0	134	88	424	320
173536	N.F.	6/9/58	5/21/58	2	44.0	42.2	12.7	12.0	132	94	480	336
173537	N.F.	6/10/58	5/30/58	2	43.6	42.2	13.2	12.5	115	69	448	336
173538	V.F.	6/10/58	5/31/58	2	43.0	42.0	13.4	12.7	116	72	512	336
173539	N.F.	6/15/58	6/3/58	2	43.0	42.0	12.5	12.0	135	82	416	320
173540	N.F.	6/17/58	6/10/58	2	45.0	43.6	13.2	12.6	128	80	416	352
173541	N.F.	6/17/58	6/11/58	2	45.0	44.0	13.1	12.5	129	86	408	344
Current Mill Average:					43.1		12.6		107		388	
Cumulative Mill Average:					43.1		12.8		112		349	
Mill Factor, %					100.0		98.4		95.5		111.2	
Mill Index, %					100.0		99.2		95.5		116.9	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE X

MILL H -- 42-LB. LINERBOARD

File No.	Furnish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. gage			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178993	WFLS	6/9/58	5/21/58	2	43.6	41.0	42.2	13.0	12.2	12.7	139	99	120	368	288	323
178994	WFLS	6/9/58	5/22/58	2	44.0	42.4	43.3	14.1	13.2	13.6	139	76	110	352	288	324 ^a
178995	WFLS	6/9/58	5/28/58	2	44.2	41.6	42.6	14.5	13.3	13.9	145	90	117	368	272	308 ^a
178996	WFLS	6/9/58	5/31/58	2	44.4	42.4	43.2	14.5	13.3	13.9	140	89	110	336	240	301 ^a
179071	WFLS	6/18/58	6/5/58	2	44.8	42.0	43.4	14.5	13.3	13.9	138	71	102	384	272	315 ^a
179129	WFLS	6/26/58	6/16/58	2	44.4	42.0	43.5	14.0	13.1	13.6	137	89	114	384	304	347 ^a
179130	WFLS	6/26/58	6/19/58	2	44.4	43.2	43.8	14.0	13.0	13.6	133	100	114	360	288	311 ^a
Current Mill Average:					43.2			13.6			112			318		
Cumulative Mill Average:					42.7			13.6			115			341		
Mill Factor, %					101.2			100.0			97.4			93.3		
Mill Index, %					100.2			107.1			100.0			95.8		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA—JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XI

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. Range		In		g./sheet		Elmendorf Tear, Across				
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
179066	N.F.	6/16/58	5/12/58	1	43.8	41.8	42.6	12.8	11.8	12.2	135	103	118	312	264	285	368	320	353 ^a
179080	N.F.	6/17/58	5/16/58	1	44.2	41.6	43.1	12.8	11.6	12.1	137	98	116	320	256	279 ^a	424	320	353 ^a
179109	N.F.	6/23/58	5/27/58	1	43.4	41.2	42.7	12.7	11.8	12.2	138	104	117	312	248	275 ^a	360	312	340 ^a
Correct all average							42.8			12.1		117			279		349		
Cumulative mill average							43.6			12.8		110			292		347		
Mill Factor, %							98.2			94.5		106.4			95.5		100.6		
Mill Index, %							99.3			95.3		104.5			84.0		93.6		

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XII

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight,			Caliper,			Bursting Strength,			Elmendorf Tear,					
					lb.			points			p.s.i. gage			g./sheet					
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
173113	----	6/23/58	6/4/58	2	44.0	41.6	43.1	13.3	12.2	12.9	134	83	117	384	328	358 ^a	440	368	403 ^a
173114	----	6/23/58	6/10/58	2	44.2	42.0	43.6	13.4	12.5	13.0	128	93	112	392	312	347	480	352	405 ^a
173115	----	6/23/58	6/12/58	1	43.4	42.2	42.9	13.2	12.2	12.7	140	91	115	384	304	346 ^a	408	344	382 ^a
173120	----	6/24/58	6/18/58	1	41.2	40.0	40.5	13.1	11.6	12.5	127	78	106	376	304	345 ^a	416	328	376 ^a
Current Mill Average:					42.5			12.8			112			349			391		
Cumulative Mill Average.					----			----			----			----			----		
Mill Factor, %					----			----			----			----			----		
Mill Index, %					98.6			100.8			100.0			105.1			104.8		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XIV

MILL L -- 42-LB. LINERBOARD

File No	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		Elmendorf Tear, g./sheet									
					Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.				
178998	N.F.	6/ 2/58	5/22/58	2	43.8	42.4	43.1	12.9	12.0	12.6	138	99	119	368	264	315	424	344	373 ^a	
178399	N.F.	6/ 2/58	5/22/58	2	44.4	43.6	43.8	12.4	10.9	11.9	138	88	118	328	272	299	440	336	377 ^a	
178999	N.F.	6/ 9/58	5/24/58	2	44.0	43.4	43.9	12.5	11.2	12.0	139	106	122	336	240	295	448	328	383 ^a	
178990	N.F.	6/ 9/58	5/24/58	2	44.8	42.0	43.7	13.0	12.0	12.7	133	92	114	400	240	321 ^a	480	352	382 ^a	
178991	N.F.	6/ 9/58	5/28/58	2	44.0	43.0	43.6	12.9	12.1	12.5	137	99	117	352	256	303	440	344	397 ^a	
178992	N.F.	6/ 9/58	5/28/58	2	43.0	41.8	42.5	12.8	11.5	12.0	138	92	113	320	264	291	400	352	375 ^a	
Current Mill Average:					43.4				12.3				117		304		381			
Cumulative Mill Average:					42.9				12.3				112		308		360			
Mill Factor, %					101.2				100.0				104.5		98.7		105.8			
Mill Index, %					100.7				96.9				104.5		91.6		102.1			

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XV

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gauge			Elmendorf Tear, g./sheet					
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
173996	N.F.	6/2/58	5/23/58	1	44.0	42.4	43.4	13.0	12.2	12.8	125	75	110	400	320	349	432	376	407 ^a
173997	N.F.	6/2/58	5/23/58	1	44.0	42.4	43.6	13.0	12.1	12.5	124	78	108	400	320	351	432	344	389 ^a
173979	N.F.	6/6/58	5/25/58	2	45.4	44.0	44.5	12.7	12.0	12.3	142	107	124	416	328	367	464	392	425 ^a
173930	N.F.	6/6/58	5/27/58	2	43.8	43.0	43.4	12.5	12.0	12.2	138	89	113	384	288	332	464	368	407 ^a
173931	N.F.	6/9/58	6/2/58	2	44.0	43.0	43.8	13.0	12.0	12.4	146	95	122	432	304	352	448	400	411 ^a
173982	N.F.	6/9/58	6/3/58	2	44.2	43.0	43.9	12.1	11.1	11.8	140	107	121	400	288	345 ^a	456	368	399 ^a
179067	N.F.	6/16/58	6/8/58	1	46.0	44.4	45.4	13.0	12.1	12.5	142	107	122	384	312	337 ^a	432	344	394 ^a
179068	N.F.	6/16/58	6/8/58	2	44.4	43.0	43.8	12.1	11.5	11.9	149	103	127	392	304	332	424	352	393 ^a
179111	N.F.	6/23/58	6/15/58	2	44.6	43.8	44.0	12.3	10.8	11.8	133	105	119	368	296	325 ^a	400	360	379 ^a
179112	N.F.	6/23/58	6/16/58	1	44.0	42.8	43.6	12.7	11.5	12.1	137	101	118	376	296	337 ^a	400	344	375 ^a
Current All Average:					44.0			12.2			118			343			398		
Cumulative All Average					43.5			12.4			116			319			374		
All Factor, %					101.1			98.4			101.7			107.5			106.4		
All Index, %					102.1			96.1			105.4			103.3			106.7		

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XVI

MILL N -- 42-LB. LINERBOARD

File No	Finish	Date Recd	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
					lb.		Av.	points		Av.	p.s.i. gage		Av.	In		Across			
					Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.	Max.	Min.	Av.	
179391	N.F.	6/2/58	5/13/58	1	44.4	42.6	43.3	13.9	12.8	13.3	134	85	114	352	272	305	416	344	371 ^a
179392	N.F.	6/2/58	5/17/58	1	44.0	42.2	43.2	14.5	12.1	13.1	134	96	113	320	232	277	400	328	357 ^a
179393	N.F.	6/2/58	5/20/58	1	43.8	42.4	43.2	14.3	13.1	13.5	138	87	113	344	248	290 ^a	424	320	357 ^a
179083	N.F.	6/17/58	6/3/58	1	44.4	42.4	43.8	14.1	13.0	13.6	148	96	116	328	272	295 ^a	392	320	362 ^a
179084	N.F.	6/17/58	6/7/58	1	44.0	42.6	43.5	13.5	12.5	12.9	131	95	114	328	248	281 ^a	392	328	359 ^a
179113	N.F.	6/24/58	6/9/58	1	43.6	41.2	42.6	14.0	13.0	13.4	143	97	118	344	248	289 ^a	384	344	369 ^a
179119	N.F.	6/24/58	6/12/58	1	44.0	41.6	43.0	14.7	13.2	13.8	141	91	114	304	256	279 ^a	384	304	340 ^a
Current mill average:					43.2			13.4			115			288			359		
Cumulative mill average:					42.7			13.3			114			293			361		
all Factor, %					101.2			100.8			100.9			98.3			99.4		
all Index, %					100.2			105.5			102.7			86.7			96.2		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XVII

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I., gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
173906	N.	6/2/58	5/3/58	4	44.0	41.6	12.8	11.7	119	81	101	368
173907	N.	6/2/58	5/7/58	4	43.6	39.0	14.2	13.2	122	75	101	348 ^a
173907	I.	6/9/58	5/20/58	4	43.4	40.2	13.2	12.0	118	83	105	400
173908	W.	6/9/58	5/24/58	4	44.2	42.0	12.9	11.9	125	85	109	416
Current Mill Average:					42.3		12.8		104		362	359
Cumulative Mill Average:					42.7		13.2		110		361	375
Mill Factor, %					99.1		97.0		94.5		100.3	95.7
Mill Index, %					98.1		100.8		92.9		109.0	96.2

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	In	Max.	Min.	Av.	Across	
172905	W.F.	6/ 2/58	5/ 5/58	4	43.8	41.6	42.5	12.0	10.5	11.4	116	86	106	368	288	338 ^a	400	312	348 ^a
Current Mill Average:							42.5			11.4			106			338			348
Cumulative Mill Average:							42.9			11.7			113			353			383
Mill Factor, %							99.1			97.4			93.8			95.8			90.9
Mill Index, %							98.6			89.8			94.6			101.8			93.3

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

No samples submitted.

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA—JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XI

MILL S — 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. x 484			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
179071	V.F.	6/16/58	5/14/58	-	45.0	43.0	44.0	12.8	10.6	11.6	135	84	111	400	320	347 ^a
179072	V.F.	6/16/58	6/9/58	-	45.6	43.8	44.6	11.6	10.4	11.2	124	99	111	384	296	343
179073	V.F.	6/16/58	6/9/58	-	46.0	44.0	45.1	12.1	10.5	11.4	141	107	122	392	312	349 ^a
179074	V.F.	6/16/58	6/9/58	-	43.8	40.2	41.9	12.0	11.0	11.4	132	99	114	384	280	341
179075	V.F.	6/16/58	6/10/58	-	46.0	44.0	44.8	12.5	12.0	12.2	149	95	121	440	312	356 ^a
179076	V.F.	6/16/58	6/11/58	-	46.0	42.2	45.0	12.6	11.9	12.1	131	94	112	416	320	357
Current Mill Average.							44.2			11.6			115			349
Cumulative Mill Average.							43.6			12.4			116			344
Mill Factor, %							101.4			93.5			99.1			101.5
Mill Index, %							102.6			91.3			102.7			105.1
																101.0
																103.2

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA—JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XII
MILL T — 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		Klendorff Tear, g./sheet								
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	In	Across	Max.	Min.	Av.	
173904	WFLS	6/2/58	5/27/58	1	44.0	43.0	43.6	13.8	12.8	13.2	132	76	107	432	288	342 ^a	416	320	359 ^a
Current Mill Average:							43.6			13.2			107			342			359
Cumulative Mill Average:							43.0			13.3			112			320			361
All Factor, %							101.4			99.2			95.5			106.9			99.4
Mill Index, %							101.2			103.9			95.5			103.0			96.2

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XXII, the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the conditioning periods varied considerably.

TABLE XXII

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H., %	Temp., °F.	Time, hr.
A	50	74-75	24-44	50	74-75	2
B		None		51-60	70-72	--
C		None		50	73	0.5
D	34-36	77-78	8	50-51	72-73	16
E	50	73	72	50	73	72
F	50-52	71-72	24	50-53	70-72	24
G		None		50	73-75	24
H	50	72	24		None	
I	43-62	68-79	0.5	50	43-73	48-72
J		None		50	73	24-120
K		None		53-55	72-74	48
L	50	73	24	50	73	24
M		None		50	73-74	24
N		None		55-70	84-94	--
O		None		53	73	--
P		None		50	73	24
Q			No samples submitted.			
S		None		50	73	48+
T		None		68	83	--

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of differences between Institute and mill test results is given in Table XXIV for the current period and the two previous periods. The comparisons for individual sample

lots are given in Tables XXV to XLIII for the various mills. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. Table XXIII shows the over-all average difference between Institute and mill test results based on the data for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the over-all average differences shown for each test in Table XXIII have been calculated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

It may be noted in Table XXIV that the maximum average differences (per cent) between the average basis weight results of the Institute and those of a given mill on corresponding samples is three per cent for the current period. By comparison, the maximum average differences (per cent) noted for the previous two periods was also three per cent. Further, it may be noted that the average basis weight results for Mills F, H, O and P were higher than those for the Institute, the average results for Mills D and I were the same, and the average results for the other mills were lower. The variations associated with Mills C, M, and N may be excessive.

The maximum variation in caliper for the current period is seven per cent. This is slightly higher than the maximum variation of six per cent for the previous two periods. Compared with the Institute's results,

the average test results for Mills B, I, and S were higher, and the average test results for the other mills were lower. The variations associated with Mills A and O appear to be inordinate.

It may be noted in Table XXIII that the bursting strength results exhibited a maximum variation of ten per cent for the current period. The average results for Mills E, G, H, K, O and T were higher than those for the Institute, the average result for Mill D was the same, and the average results for the other mills were lower. The variation of ten per cent for Mill P is excessive whereas the variations of six per cent for Mills A and G are borderline.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills B, G, H, I, and T were higher than those for the Institute, and the results for the other mills were lower. The maximum variation for the current period was eighteen per cent. For the current period the variations associated with the results for Mills A, B, I, P, and T appear to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills B, E, F, G, H, I, M, N, P, and T were higher than those for the Institute, the average result for Mill O was the same, and the average results for the other mills were lower. The maximum variation for the current period was sixteen per cent. The variations noted for Mills B, G, H, I, and T are ten per cent or greater and should be questioned.

TABLE VIII
SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS)

Mills* No. Samples Compared	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	4	5	2	9	1	3	9	7	3	4	9	6	10	7	4	1	0	6	1	1
	<u>Basis Weight</u>																			
Institute	43.8	42.9	43.8	43.7	44.6	43.3	43.1	43.2	42.8	42.5	42.9	43.4	44.0	43.2	42.3	42.5	42.5	44.2	43.6	
Mill	43.4	42.7	42.4	43.7	44.5	43.4	43.1	43.9	42.8	42.0	42.5	43.3	42.9	42.1	42.6	42.6	42.6	43.9	42.4	
Av. Diff.**	-0.4	-0.2	-1.4	0.0	-0.1	+0.1	0.0	+0.7	0.0	-0.5	-0.4	-0.1	-1.1	-1.1	+0.3	+0.1	+0.1	-0.3	-1.2	
Max. Diff.***	-0.6	-1.0	-1.5	+1.5	-0.1	+0.5	+0.4	+1.5	-0.1	-0.8	-1.2	-0.4	-2.5	-1.9	+1.7	+0.1	+0.1	-0.7	-1.2	
	<u>Caliber</u>																			
Institute	13.4	12.4	12.4	12.5	13.2	13.1	12.6	13.6	12.1	12.8	11.7	12.3	12.2	13.4	12.8	11.4	11.4	11.5	13.2	
Mill	12.7	12.5	12.2	12.1	13.1	12.8	12.4	13.4	12.2	12.6	11.3	11.9	11.9	13.1	11.9	11.0	11.0	11.8	12.8	
Av. Diff.**	-0.7	+0.1	-0.2	-0.4	-0.1	-0.3	-0.2	-0.2	+0.1	-0.2	-0.4	-0.4	-0.3	-0.3	-0.9	-0.4	-0.4	+0.2	-0.4	
Max. Diff.***	-0.7	+0.3	-0.4	-0.8	-0.1	-0.5	-0.5	-0.4	+0.1	-0.2	-0.6	-0.7	-0.5	-0.5	-1.8	-0.4	-0.4	+0.3	-0.4	
	<u>Bursting Strength</u>																			
Institute	112	111	113	112	109	114	107	112	117	112	116	117	118	115	104	106	106	115	107	
Mill	105	109	109	112	113	111	113	114	115	109	118	114	116	110	107	95	95	114	108	
Av. Diff.**	-7	-2	-4	0	+4	-3	+6	+2	-2	-3	+2	-3	-2	-5	+3	-11	-11	-1	+1	
Max. Diff.***	-9	-5	-7	+6	+4	-9	+11	+4	-4	-7	+6	-7	-9	-6	+9	-11	-11	-6	+1	
	<u>Tearing Strength, in</u>																			
Institute	300	305	377	323	365	356	388	318	279	349	372	304	343	288	362	338	338	349	342	
Mill	262	361	345	300	358	346	394	340	311	--	344	302	334	267	334	289	289	320	395	
Av. Diff.**	-38	+56	-32	-23	-7	-10	+6	+22	+32	--	-28	-2	-9	-21	-28	-49	-49	-29	+53	
Max. Diff.***	-52	+82	-51	-59	-7	-39	+38	+53	+34	--	-52	-20	-53	-42	-49	-49	-49	-41	+53	
	<u>Tearing Strength, across</u>																			
Institute	368	384	383	358	409	404	386	369	349	391	405	381	398	359	359	348	348	385	359	
Mill	363	422	364	336	430	427	430	414	389	--	394	372	405	360	359	356	356	382	417	
Av. Diff.**	-5	+38	-19	-22	+21	+23	+44	+45	+40	--	-11	-9	+7	+1	0	+8	+8	-3	+58	
Max. Diff.***	-10	+50	-40	-84	+21	+49	+72	+70	+53	--	-30	-23	+41	+31	+25	+8	+8	+23	+58	

* Comparison based on averages involved only those samples on which mill test data were submitted.
 ** Average difference is the difference between the Institute mill average and the mill average based on mill test data.
 *** Maximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

TABLE XIV
COMPARISON OF INSTITUTE-MILL DIFFERENCES BY PERIODS
Average Differences, per cent

Mill	Period	Basis height	Caliper	Burst	Tear, in	Tear, across	Mill	Period	Basis Weight	Caliper	Burst	Tear, in	Tear, across
A	Current	-0.9	-5	-6	-13	-1	K	Current	-0.9	-3	+2	-8	-3
	131st	-0.5	-4	-3	-20	-5		131st	-1	-4	+0.9	+6	+4
	130th	-1	-6	-5	-15	-2		130th	-0.5	-3	+3	-8	-3
B	Current	-0.5	-0.8	-2	+18	+10	L	Current	-0.2	-3	-3	-0.7	-2
	131st	-0.5	-0.8	-5	+12	+3		131st	+0.2	-3	-3	-5	-7
	130th	+0.2	0	-6	+9	-8		130th	+0.2	-2	0	-4	-6
C	Current	-3	-2	-4	-8	-5	M	Current	-3	-2	-2	-3	+2
	131st	-1	-2	-2	+0.3	+4		131st	-2	-2	0	-6	-4
	130th	-0.7	-2	+2	+0.3	+6		130th	-0.7	0	-0.8	+0.3	0
D	Current	0	-3	0	-7	-6	N	Current	-3	-2	-4	-7	-0.3
	131st	-0.7	-5	0	-11	-2		131st	-2	-2	-4	-15	-5
	130th	-0.2	-3	0	-10	-7		130th	-1	-3	0	-12	-2
E	Current	-0.2	-0.8	+4	-2	+5	O	Current	+0.7	-7	+3	-8	0
	131st	--	--	--	--	--		131st	-2	-5	-0.9	-4	-3
	130th	--	--	--	--	--		130th	+0.7	-3	+5	-4	+0.5
F	Current	+0.2	-2	-3	-3	+6	P	Current	+0.2	-4	-10	-14	+2
	131st	+0.2	-3	-6	+5	+13		131st	--	--	--	--	--
	130th	-1	-0.7	-4	-15	-9		130th	-0.5	-2	-3	-4	+2
G	Current	0	-2	+6	+2	+11	Q	Current	--	--	--	--	--
	131st	-0.2	-2	+2	+3	+4		131st	+0.9	-2	+6	-1	+3
	130th	+1	-2	+4	+13	+15		130th	+0.7	-2	+5	0	+2
H	Current	+2	-1	+2	+7	+12	S	Current	-0.7	+2	-0.9	-8	-0.8
	131st	+3	-0.7	-0.9	+7	+10		131st	-0.5	+0.8	+2	-4	+3
	130th	+1	-2	-2	+2	+12		130th	-0.7	+0.8	0	-5	+2
I	Current	0	+0.8	-2	+11	+11	T	Current	-3	-3	+0.9	+15	+16
	131st	-2	-0.8	+4	+5	+7		131st	-2	-3	-0.9	+5	+10
	130th	-0.7	+0.8	+3	+8	+8		130th	-1	-2	+2	+18	+19
J	Current	-1	-2	-3	--	--		Current	--	--	--	--	--
	131st	--	--	--	--	--		131st	--	--	--	--	--
	130th	--	--	--	--	--		130th	--	--	--	--	--

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958

TABLE XXV

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date	Inch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
				IPC	Diff.	IPC	Diff.	IPC	Diff.	In Mill	Across Mill
173002	WFLS	5/21/58	1	44.4	-0.5	13.5	12.8	116	110	250	361
173009	FLS	5/21/58	1	44.3	-0.3	13.7	13.0	112	103	248	365
173022	FLS	6/10/58	1	43.0	-0.6	13.2	12.7	105	99	275	358
173093	FLS	6/11/58	1	43.7	-0.4	12.9	12.4	116	109	277	369
Current Mill Average				43.8	-0.4	13.4	12.7	112	105	262	363
											- 5

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

File No.	Finish	Date	Inch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
				IPC	Diff.	IPC	Diff.	IPC	Diff.	In Mill	Across Mill
173063	FLS	6/3/58	1	43.5	-1.0	12.2	12.4	109	107	351	423
173064	FLS	6/4/58	1	43.0	-0.1	12.7	12.4	112	107	376	429
173065	FLS	6/6/58	1	42.0	+0.8	12.5	12.5	112	107	385	419
173121	FLS	6/13/58	1	42.8	-0.3	12.5	12.5	110	110	349	429
173122	FLS	6/16/58	1	43.2	-0.5	12.2	12.5	112	112	343	409
Current Mill Average				42.9	-0.2	12.4	12.5	111	109	361	422
											+38

This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1--THROUGH JUNE 30, 1958 (continued)

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
				IPC	Mill	Diff.	IPC	Mill	Diff.	In	Across
179059	W.F.	5/29/58	-	43.6	42.2	-1.4	12.5	12.1	-0.4	115	108
179070	W.F.	5/29/58	-	44.0	42.5	-1.5	12.4	12.2	-0.2	110	110
Current Mill Average				43.8	42.4	-1.4	12.4	12.2	-0.2	113	109
										345	364
										377	383
										368 ^a	373
										386	395 ^a
										-14	-2
										-51	-40
										-32	-19

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

178901	W.F.	5/14/58	-	43.3	42.7	-0.6	12.0	11.4	-0.6	117	115	-2	265	249	345 ^a	276	-69
178902	W.F.	5/15/58	-	43.5	42.4	-1.2	12.0	11.2	-0.8	117	111	-6	289 ^a	230	339 ^a	255	-84
178903	W.F.	5/16/58	-	43.7	43.0	-0.7	12.0	11.4	-0.6	118	116	-2	288	235	335 ^a	299	-36
178975	W.F.	5/28/58	-	44.5	44.7	+0.2	12.8	12.4	-0.4	108	114	+6	343 ^a	325	357 ^a	353	-4
178976	W.F.	5/29/58	-	43.7	45.2	+1.5	12.9	12.6	-0.3	108	112	+4	337 ^a	325	353 ^a	356	+3
178977	W.F.	5/30/58	-	44.2	45.0	+0.8	12.8	12.5	-0.3	120	115	-5	358 ^a	317	387 ^a	356	-31
178994	W.F.	6/11/58	-	43.7	43.7	0.0	12.9	12.4	-0.5	107	111	+4	343 ^a	334	377 ^a	371	-6
178995	W.F.	6/12/58	-	43.6	43.4	-0.2	12.7	12.4	-0.3	107	106	-1	350 ^a	347	367 ^a	385	+18
178996	W.F.	6/13/58	-	43.3	42.9	-0.4	12.8	12.5	-0.3	106	106	0	337 ^a	333	358 ^a	372	+14
Current Mill Average				43.7	43.7	0.0	12.5	12.1	-0.4	112	112	0	323	300	358	336	-22

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

File No.	Date made	Ych. No.	Basis weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet							
			IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across	IPC	Mill Diff.				
178900	M.F.	5/20/58	44.6	-0.1	13.2	13.1	-0.1	109	113	+4	365	358	-7	409 ^a	430	+21
Current	all	Average	44.6	-0.1	13.2	13.1	-0.1	109	113	+4	365	358	-7	409	430	+21

TABLE XXX

MILL F -- 42-LB. LINERBOARD

178978	FLS	6/1/58	43.3	-0.3	13.5	13.0	-0.5	116	107	-9	379 ^a	340	-39	428 ^a	433	+5
179062	WFLS	6/10/58	43.2	+0.1	13.0	12.8	-0.2	112	112	0	357	346	-11	401 ^a	417	+16
179110	FLS	6/16/58	43.4	-0.5	12.9	12.8	-0.1	112	114	+2	332 ^a	352	+20	382 ^a	431	+49
Current Mill Average			43.3	+0.1	13.1	12.8	-0.3	114	111	-3	356	346	-10	404	427	+23

^a is average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XXX

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
				IPC		Diff.	IPC		Mill	Diff.	IPC		Mill	Diff.	In		Across	
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178894	"F.	5/15/58	2	42.3	42.4	+0.1	12.2	12.2	0.0	110	119	+ 9	377 ^a	367	-10	411 ^a	428	+17
178895	"F.	5/16/58	2	42.8	42.8	0.0	12.5	12.2	-0.3	109	111	+ 2	407 ^a	386	-21	390 ^a	427	+37
178935	"F.	5/19/58	2	43.4	43.4	0.0	12.4	12.1	-0.3	112	119	+ 7	385 ^a	366	-19	402 ^a	430	+28
178986	"F.	5/21/58	2	42.9	43.2	+0.3	12.3	11.9	-0.4	112	118	+ 6	389 ^a	405	+16	380 ^a	452	+72
179004	"F.	5/30/58	2	42.9	42.7	-0.2	13.0	12.5	-0.5	97	108	+11	388 ^a	403	+15	387 ^a	417	+30
179005	"F.	5/31/58	2	42.6	42.2	-0.4	13.0	12.7	-0.3	96	107	+11	410 ^a	374	-36	381 ^a	417	+36
179061	"F.	6/ 3/58	2	42.4	42.8	+0.4	12.3	12.1	-0.2	111	118	+ 7	369 ^a	406	+37	389 ^a	448	+59
179085	"F.	6/10/58	2	44.2	44.1	-0.1	13.0	12.9	-0.1	108	109	+ 1	389 ^a	421	+32	377 ^a	428	+51
179086	"F.	6/11/58	2	44.3	44.0	-0.3	12.9	12.8	-0.1	107	109	+ 2	380 ^a	418	+38	359 ^a	418	+59
Current Mill Average.				43.1	43.1	0.0	12.6	12.4	-0.2	107	113	+ 6	388	394	+ 6	386	430	+44

This average includes the readings for one or more specimens which tore beyond the $3/8$ -inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XXXII

MILL H -- 42-1B. LINERBOARD

File #	Folios	Date	Inch. No.	Basis weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		In		Elmendorf Tear, g./sheet		Across	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.
173993	FIS	5/21/58	2	42.2	43.7	+1.5	12.7	12.5	-0.2	120	120	0	323	353	+30
173994	FIS	5/22/58	2	43.3	44.3	+1.0	13.6	13.5	-0.1	110	111	+1	324a	335	+11
173995	FIS	5/28/58	2	42.5	43.7	+1.1	13.9	14.0	+0.1	117	120	+3	308a	361	+53
173996	FIS	5/31/58	2	43.2	43.5	+0.3	13.9	13.5	-0.4	110	114	+4	301a	354	+53
173997	FIS	6/1/58	2	43.4	43.8	+0.4	13.9	13.5	-0.4	102	106	+4	315a	346	+31
173998	FIS	6/16/58	2	43.5	43.8	+0.3	13.6	13.6	0.0	114	114	0	347a	325	-22
173999	FIS	6/19/58	2	43.8	44.3	+0.5	13.6	13.5	-0.1	114	116	+2	311a	308	-3
Current mill average				43.2	43.9	+0.7	13.6	13.4	-0.2	112	114	+2	318	340	+22
														369	+45

TABLE XXXIII

MILL I -- 42-1B. LINERBOARD

173966	"F"	5/12/58	1	42.6	42.5	-0.1	12.2	12.3	+0.1	118	114	-4	285	319	+34
173967	"F"	5/16/58	1	43.1	43.1	0.0	12.1	12.2	+0.1	116	115	-1	279a	309	+30
173968	"F"	5/27/58	1	42.7	42.7	0.0	12.2	12.3	+0.1	117	116	-1	275a	305	+30
Current mill average				42.8	42.8	0.0	12.1	12.2	+0.1	117	115	-2	279	311	+32
														349	+40

above average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

etc. All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I.		Elmendorf Tear, g./sheet	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In Mill Diff.	Across Mill Diff.
179113	----	6/4/58	2	43.1	-0.6	12.9	-0.2	117	-3	358 ^a	403 ^a
179114	----	6/10/58	2	43.6	-0.8	13.0	-0.2	112	-5	347	405 ^a
179115	----	6/12/58	1	42.9	-0.8	12.7	-0.1	115	-7	346 ^a	382 ^a
179120	----	6/18/58	1	40.5	+0.1	12.5	0.0	106	+1	345 ^a	376 ^a
Current Mill Average				42.5	-0.5	12.8	-0.2	112	-3	349	391

TABLE XXXV

MILL K -- 42-LB. LINERBOARD

178910	"B.	5/21/58	-	42.0	+0.2	11.5	-0.2	115	+4	347 ^a	0	403 ^a	397	-6
178911	"B.	5/22/58	-	42.7	-0.1	11.8	-0.3	113	+3	381 ^a	-12	403 ^a	424	+21
178912	"B	5/22/58	-	42.9	0.0	11.6	-0.2	120	+2	379 ^a	-31	407 ^a	399	-8
178913	"B	5/22/58	-	43.2	-0.7	12.0	-0.5	120	-1	365	-38	414 ^a	384	-30
178914	"B.	5/22/58	-	43.9	-0.8	12.1	-0.6	120	0	399	-52	417 ^a	389	-28
178923	"B.	5/26/58	-	43.1	-0.3	11.8	-0.4	118	+1	371	-20	416 ^a	393	-23
178924	"B	5/26/58	-	42.5	-0.5	11.4	-0.4	117	+1	352 ^a	-27	401 ^a	381	-20
179021	"B	6/1/58	-	42.8	-0.2	11.8	-0.4	115	+6	377 ^a	-30	401 ^a	397	-4
179032	"B	6/6/58	-	42.9	-1.2	11.4	-0.4	107	+1	375 ^a	-42	385 ^a	381	-4
Current Mill Average				42.9	-0.4	11.7	-0.4	116	+2	372	-28	405	394	-11

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

ote All "current mill average" data are calculated from the totals of the individual readings.

COMPARISONS OF TESTS AND MILL DATA - JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XXVI

MILL L -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. gage			In g./sheet			Elmendorf Tear, g./sheet		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
173393	..F.	5/22/58	2	43.1	43.1	0.0	12.6	12.2	-0.4	119	115	-4	315	295	-20	373 ^a	363	-10
173394	..F.	5/22/58	2	43.8	43.8	0.0	11.9	11.6	-0.3	118	116	-2	299	310	+11	377 ^a	378	+1
173395	..F.	5/24/58	2	43.9	43.9	0.0	12.0	11.7	-0.3	122	115	-7	295	293	-2	383 ^a	398	+15
173396	..F.	5/24/58	2	43.7	43.3	-0.4	12.7	12.0	-0.7	114	113	-1	321 ^a	309	-12	382 ^a	359	-23
173397	..F.	5/28/58	2	43.6	43.3	-0.3	12.5	12.0	-0.5	117	112	-5	303	305	+2	397 ^a	381	-16
173398	W.F.	5/28/58	2	42.5	42.7	+0.2	12.0	11.6	-0.4	113	111	-2	291	299	+8	375 ^a	353	-22
Current Mill Average				43.4	43.3	-0.1	12.3	11.9	-0.4	117	114	-3	304	302	-2	381	372	-9

TABLE XXVII

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. gage			In g./sheet			Elmendorf Tear, g./sheet		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
173399	..F.	5/23/58	1	43.4	42.4	-1.0	12.8	12.4	-0.4	110	113	+3	349	320	-29	407 ^a	395	-12
173400	..F.	5/23/58	1	43.6	42.7	-0.9	12.5	12.1	-0.4	108	112	+4	351	318	-33	389 ^a	388	-1
173401	..F.	5/25/58	2	44.5	43.1	-1.4	12.3	12.0	-0.3	124	115	-9	367	314	-53	425 ^a	391	-34
173402	..F.	5/27/58	2	43.4	42.9	-0.5	12.2	12.2	0.0	113	117	+4	332	346	+14	407 ^a	430	+23
173403	..F.	6/2/58	2	43.8	43.2	-0.6	12.4	12.0	-0.4	122	115	-7	352	361	+9	411 ^a	430	+19
173404	..F.	6/3/58	2	43.9	43.5	-0.4	11.8	11.8	0.0	121	120	-1	345 ^a	349	+4	399 ^a	417	+18
173405	..F.	6/8/58	1	45.4	42.9	-2.5	12.5	12.1	-0.4	122	119	-3	337 ^a	339	+2	394 ^a	400	+6
173406	..F.	6/8/58	2	43.8	42.0	-1.8	11.9	11.4	-0.5	127	119	-8	332	356	+24	393 ^a	398	+5
173407	..F.	6/15/58	2	44.0	43.2	-0.8	11.8	11.3	-0.5	119	115	-4	325 ^a	318	-7	379 ^a	388	+9
173408	..F.	6/15/58	1	43.6	43.5	-0.1	12.1	12.0	-0.1	118	117	-1	337 ^a	321	-16	375 ^a	416	+41
Current Mill Average				44.0	42.9	-1.1	12.2	11.9	-0.3	118	116	-2	343	334	-9	398	405	+7

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XXVIII

MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb		Caliper, points		Bursting Strength, p.s.i., Gate		In		Elmendorf Tear, g./sheet		Across	
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178891	"F.	5/13/58	1	43.3	42.0	-1.3	13.3	12.9	-0.4	114	109	-5	305	263	-42
178892	"F.	5/17/58	1	43.2	42.2	-1.0	13.1	13.1	0.0	113	108	-5	277	276	-1
178893	"F.	5/20/58	1	43.2	42.1	-1.1	13.5	13.0	-0.5	113	109	-4	290 ^a	258	-32
178893	"F.	6/3/58	1	43.8	42.4	-1.4	13.6	13.1	-0.5	116	111	-5	295 ^a	264	-31
178894	"F.	6/7/58	1	43.5	41.6	-1.9	12.9	12.9	0.0	114	108	-6	281 ^a	277	-4
178894	"F.	6/9/58	1	42.6	42.4	-0.2	13.4	13.1	-0.3	118	113	-5	289 ^a	254	-35
179119	"F.	6/12/58	1	43.0	42.3	-0.7	13.8	13.6	-0.2	114	115	+1	279 ^a	280	+1
Current Mill Average				43.2	42.1	-1.1	13.4	13.1	-0.3	115	110	-5	288	267	-21
													359	360	+1

TABLE XXIX

MILL O -- 42-LB. LINERBOARD

178906	"	5/3/58	4	42.7	42.9	+0.2	12.2	11.9	-0.3	101	103	+2	346 ^a	325	-21
178907	"	5/7/58	4	41.7	43.4	+1.7	13.8	12.0	-1.8	101	110	+9	348 ^a	344	-4
178987	"	5/20/58	4	41.6	41.5	-0.1	12.7	12.2	-0.5	105	103	-2	369 ^a	331	-38
178988	"	5/24/58	4	43.2	42.6	-0.6	12.3	11.4	-0.9	109	113	+4	387 ^a	338	-49
Current Mill Average				42.3	42.6	+0.3	12.8	11.9	-0.9	104	107	+3	362	334	-28
													359	359	0

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XI

MILL P -- 42-LB. LINERBOARD

File No.	Date Made	Fib. No.	Basis Weight, lb		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet							
			IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across	IPC	Mill Diff.				
176305	5/ 5/58	4	42.5	+0.1	11.4	11.0	-0.4	106	95	-11	338 ^a	289	-49	348 ^a	356	+ 8
Current Mill Average			42.5	+0.1	11.4	11.0	-0.4	106	95	-11	338	289	-49	348	356	+ 8

TABLE XII

MILL Q -- 42-LB. LINERBOARD

No samples submitted

^a: is average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
^b: is all "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--JUNE 1 THROUGH JUNE 30, 1958 (continued)

TABLE XLII

MILL S -- 42-LB. LINERBOARD

File No	Fin-sh	Date made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		In		Across					
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.				
172071	..F	5/14/58	-	44.0	43.5	-0.5	11.6	11.8	+0.2	111	113	+2	347 ^a	316	362	383 ^a	-21
172072	..F	6/ 9/58	-	44.6	44.2	-0.4	11.2	11.5	+0.3	111	112	+1	343	307	375	385 ^a	-10
172073	..F	6/ 9/58	-	45.1	44.4	-0.7	11.4	11.6	+0.2	122	116	-6	349 ^a	333	400	377 ^a	+23
172074	..F.	6/ 9/58	-	41.9	41.8	-0.1	11.4	11.5	+0.1	114	114	0	341	313	373	367 ^a	+6
172075	..F	6/10/58	-	44.8	44.7	-0.1	12.2	12.3	+0.1	121	118	-3	356 ^a	315	380	399 ^a	-19
172076	..F.	6/11/58	-	45.0	44.8	-0.2	12.1	12.1	0.0	112	114	+2	357	337	404	401 ^a	+3
Current Mill Average				44.2	43.9	-0.3	11.6	11.8	+0.2	115	114	-1	349	320	382	385	-3

TABLE XLIII

MILL T -- 42-LB. LINERBOARD

172504	FlS	5/27/58	1	43.6	42.4	-1.2	13.2	12.8	-0.4	107	108	+1	342 ^a	395	417	359 ^a	+58
Current Mill Average				43.6	42.4	-1.2	13.2	12.8	-0.4	107	108	+1	342	395	417	359	+58

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

etc All "current mill average" data are calculated from the totals of the individual readings.

